

AMENDMENTS TO THE CLAIMS

1. (Original) A spiral separation membrane element, comprising one or more separation membranes, one or more feed-side channel components, one or more permeation-side channel components, and a perforated hollow core tube around which the separation membranes, the feed-side channel components and the permeation-side channel components are wrapped, wherein the feed-side channel component is a net formed by fusion bonding.

2. (Original) The spiral separation membrane element according to Claim 1, wherein the feed-side channel component comprises weft yarns crossing the direction of feed fluid flow and warp yarns arranged along the direction of feed fluid flow, and the weft yarns are thinner than the warp yarns.

3. (Withdrawn) The spiral separation membrane element according to Claim 1, wherein the feed-side channel component is a net channel component that is structured to have meandering warp yarns arranged along the direction of feed fluid flow.

4. (Withdrawn) The spiral separation membrane element according to Claim 1, wherein

the feed-side channel component has a two-layer structure comprising a first layer composed of first yarns and a second layer composed of second yarns,

the first and second yarns each have a parallel part repeated and arranged substantially parallel to the direction of feed fluid flow and an oblique part repeated and arranged in a direction oblique to the direction of feed fluid flow, and

the parallel part of the first yarn and the parallel part of the second yarn are fused and bonded to form a hexagonal plane unit.

5. (Previously Presented) A spiral separation membrane element, comprising one or more separation membranes, one or more feed-side channel components, one or more permeation-side channel components, and a perforated hollow core tube around which the

separation membranes, the feed-side channel components and the permeation-side channel components are wrapped, wherein

the feed-side channel component is a net formed by fusion bonding and has a three-layer structure comprising warp yarns arranged substantially parallel to the direction of feed fluid flow, oblique yarns arranged in a direction oblique to the direction of feed fluid flow, and reverse oblique yarns arranged in a direction that is reversely oblique to the direction of feed fluid flow with respect to the direction of the oblique yarns.

6. (Withdrawn) The spiral separation membrane element according to Claim 2, wherein the feed-side channel component is a net channel component that is structured to have meandering warp yarns arranged along the direction of feed fluid flow.

7. (Previously Presented) The spiral separation membrane element according to Claim 1, wherein the feed-side channel component net formed by fusion bonding has a relatively smooth surface as compared to the surface of the products formed by the shear method whereby damage to the membrane by contact with or wrapping and pressing onto the membrane surface is lessened in the process of assembling the element.

8. (Withdrawn) The spiral separation membrane element according to Claim 1, wherein at least one channel component is a ladder-type channel component.

9. (Withdrawn) The spiral separation membrane element according to Claim 1, wherein at least one channel component is a hexagonal-type channel component.

10. (Previously Presented) The spiral separation membrane element according to Claim 1, wherein at least one channel component is a three layer-type channel component.

11. (Previously Presented) The spiral separation membrane element according to Claim 2, wherein the ratio of the diameter of the warp yarn to that of the weft yarn (warp:weft) is properly from 4:1 to 2:1.

12. (Withdrawn) A method of treating suspended matter-containing waste water comprising the steps of contacting said waste water with a spiral separation membrane element containing the feed-side channel component of claim 1, whereby components in said waste water are separated.

13. (Withdrawn) A method for manufacturing a spiral separation membrane element, comprising:

forming a feed-side channel component by:

extruding weft and warp yarns from a number of nozzle holes arranged at two circumferential portions of dies including inner and outer portions in an extruder while rotating the inner and outer nozzle holes in opposite directions, wherein the nozzle holes are arranged so that both nozzle holes do not overlap one another at the intersections of the weft and warp yarns; and

fusing and bonding the extruded weft and warp yarns to each other to form intersections with timing of fusion bonding; and

combining one or more of said feed-side channel components with one more separation membranes, and one or more permeation-side channel components, by wrapping said components around a perforated hollow core tube,

whereby a spiral separation membrane element in accordance with Claim 1 is formed.